



UNITED STATES NAVY

# MEDICAL NEWS LETTER

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Rear Admiral Edward C. Kenney MC USN  
Surgeon General

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The U. S. Navy Medical News Letter is basically an official Medical Department publication inviting the attention of officers of the Medical Department of the Regular Navy and Naval Reserve to timely up-to-date items of official and professional interest relative to medicine, dentistry, and allied sciences. The amount of information used is only that necessary to inform adequately officers of the Medical Department of the existence and source of such information. The items used are neither intended to be, nor are they, susceptible to use by any officer as a substitute for any item or article in its original form. All readers of the News Letter are urged to obtain the original of those items of particular interest to the individual.

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Please forward changes of address for the News Letter to: Commanding Officer, U. S. Naval Medical School, National Naval Medical Center, Bethesda 14, Md., giving full name, rank, corps, and old and new addresses.

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Rear Admiral Bartholomew W. Hogan's Farewell Message  
to All Medical Department Personnel

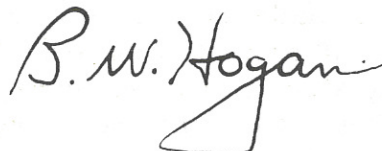
"As I complete my tenure as Surgeon General I am filled with feelings of regret, but at the same time I reflect with great pride upon our joint accomplishments.

During the past six years the Navy Medical Department has made great strides in all areas for which we have responsibility. We have used all the resources at our disposal in making Navy medical care outstanding in all respects and second to none. Great emphasis has been placed on the selection, training, and retention of personnel for both the clinical and the military medical fields. New facilities have been built and others have been refurbished and re-equipped. Our research laboratories have made significant contributions to medicine and dentistry at both the basic science and clinical levels. Only through long hours of work and meticulous attention to details by all our people were we able to maintain progress toward our goals in spite of periods of relative austerity. I am indeed proud of all the achievements of the Navy Medical Department.

During my thirty-five years of service I have developed an ever increasing feeling of admiration and respect for the officers, enlisted men, and civilians who make up the Navy Medical Department. To all of them I earnestly desire to express my deep appreciation for their loyal support and their ever present devotion to duty. I am confident they will continue this excellent performance for the new Surgeon General, Rear Admiral E. C. Kenney, MC, U.S. Navy.

With gratitude and best wishes to all,

Sincerely yours,

A handwritten signature in dark ink, reading "B. W. Hogan". The signature is written in a cursive style with a large, stylized initial "B" and a long, sweeping underline that extends to the right.

B. W. Hogan  
Rear Admiral, MC  
Surgeon General, U. S. Navy"

### Sequelae of Head Injuries

Arthur H. Auerback MD, Albert E. Scheflen MD, Raymond B. Reinhart MD and Carol K. Scholz PSW, 255 S. 17th St., Philadelphia 3, Pa. The Psychophysiologic Sequelae of Head Injuries. Amer J Psychiat 117: 499-505, December 1960.

The post-traumatic or postconcussion syndrome occurs frequently after head injuries and is a diagnosis made mainly by neurologists and neurosurgeons rather than by psychiatrists. The most usual symptoms are headache, dizziness, anxiety, irritability, insomnia, impairment of memory and concentration, and reduced tolerance to exertion, alcohol, and heat.

The cause of the condition is not entirely clear, although it is generally believed that both physical and emotional factors contribute to it. Among speculated organic causes are: vasomotor changes, perhaps associated with the brain stem damage; meningeal adhesions which produce traction on the dural sinuses; and effusion of cerebrospinal fluid into the subdural space.

Emotions enter into the post-traumatic syndrome in a number of ways:

(1) The head has great psychic value, and injury to it may represent an overwhelming of the ego. Headache, dizziness, and other symptoms originally caused by organic damage may serve as a nucleus for a neurotic reaction.

(2) Hope for compensation often operates unconsciously to prolong symptoms.

(3) Where litigation is involved there may also be the desire for revenge or need for tangible proof in the form of judicial decision that one's symptoms are justified.

Uncertainty surrounding the post-traumatic syndrome permits development of doubts and fears of the unknown. When symptoms persist, the patient often senses that what he has is not a well-defined, clearly understood condition, but rather a vague one which can be variously interpreted. His contact with physicians, lawyers, and others may leave him wondering whether his trouble is due to brain damage, "nervousness," or imagination. Although most patients eventually recover, it can be at a considerable cost in time, money, and suffering; a certain number remain permanently incapacitated by the post-traumatic syndrome.

The authors made an inquiry into the nature of post-traumatic syndrome observed in 48 patients admitted to the neurosurgical service of Temple University Medical Center during a period of 20 months beginning 1 January 1957. Two other patients were included to make a total of 50. The interval between injury and reexamination ranged from 5 to 36 months with a mean of 12 months.

The most surprising finding was that severity of injury was not related to severity of post-traumatic symptoms. In general, the severity of head injury is considered to be related to the length of unconsciousness



and other signs of brain damage at the time of injury. However, it is known that some of this damage is reversible. The good recovery of some severely injured patients must be based on this fact. On the other hand, irreversible damage as detected by persistent neurologic signs is associated with increased post-traumatic symptoms. Another factor may be that in this group many patients had relatively severe reactions to minor injuries.

Turning to the psychosocial factors, one of the most definite relationships is between pretraumatic personality disturbance and post-traumatic symptoms. The authors believe there is a causal relationship between these factors. In many cases where a personality disturbance exists, a head injury is usually enough to upset the emotional balance and result in prolonged symptoms. This is particularly true for neurotics and patients with character disorders. Some patients seen by the authors showed neurotic reactions in addition to, or in place of, post-traumatic symptoms. The most common were: tendency to use the injury as a face saving device for all other difficulties, fear that a vital part of the body had been irreparably injured, feeling of vulnerability or of having been abandoned by fate, guilt reactions if the subject had contributed to the accident, and fear of insanity.

Interestingly, some patients with personality disturbances recovered promptly and showed no tendency to use the injury or their symptoms in the service of neurotic needs. Evidently, for these subjects the injury was not particularly stressful psychologically; perhaps it did not touch upon their important conflicts. Also, it seems that these patients had no previous tendencies to somatize their anxiety.

Injuries which were psychologically traumatic seemed closely related to severity of post-traumatic symptoms. However, this is merely suggestive because of the difficulty in retrospectively rating how disturbing an injury has been. The clinical impression is that the emotional impact of an injury is indeed important.

In those cases where compensation was involved, patients had relatively worse post-traumatic symptoms. Whether the matter of compensation was settled or not did not appear significant; there is no explanation for this fact.

The authors consider their results to be in line with those of other authors in indicating that emotional factors and circumstances of injury seem to be relatively more important than severity of injury in causing post-traumatic symptoms. Yet, organic structural changes are also important as indicated by the significance of neurologic sequelae. Where organic factors predominate, the physician aims for retraining the patient and developing his undamaged capabilities. He is oriented toward the probable acceptance of a certain amount of limitation of function. On the other hand, in psychogenic problems the indicated treatment is some form of psychotherapy, with the assumption that full recovery is possible. The proper balance of these two approaches depends on accurate appraisal of the relative importance of each factor. The problem of determining the extent of residual brain damage in individual cases can be extremely difficult. The electroencephalogram may

be of help, but cannot be relied on confidently because of false positives as well as false negatives.

Obviously, the situation will be improved only by development of better neurologic and psychiatric diagnosis. In each case, advances may take the form of entirely new diagnostic modalities or better application of existing ones.

Regarding psychiatric aspects, the authors suggest a program of psychiatric follow-up of head injured patients in close conjunction with the neurosurgical follow-up. The hope is that continued contact with these patients will reveal more exactly how neurotic forces operate to prolong symptoms and disability, and how these forces interact with symptoms of organic origin. An additional purpose is for therapeutic reasons.

\* \* \* \* \*

#### Psychiatric Progress 1960: Alcoholism

Karl M. Bowman MD, Professor of Psychiatry Emeritus, University of California Medical Center, San Francisco 22, Calif. Amer J Psychiat 117: 628-630, January 1961.

Jellinek considers that there is a physiologic dependence in alcoholism similar to that found in morphine and barbiturate addiction, and that the convulsions of the alcoholic are commonly brought about by withdrawal of alcohol. He feels that further study of the evidence on both sides should be carried out, but concludes, "The alcohol withdrawal syndrome is so well documented that its existence can hardly be denied and under certain conditions . . . it may culminate in delirium tremens."

Krystal, in a recent study, also believed that withdrawal of alcohol was a precipitating factor in delirium tremens and that it was caused by: (1) water, salt, and magnesium deficiency, (2) inability to wall off invading organisms, (3) brain swelling, and (4) the pharmacothymic crisis.

A French paper reported the previous high mortality rate in delirium tremens and its decrease in 1958 and 1959 to one-fifth of the 1951 rate. The authors attributed the major part of this improvement to parenteral meprobamate. It is noteworthy that the authors, in addition to meprobamate by intramuscular injection, used vitamin B<sub>1</sub> and B<sub>12</sub>, strychnine, and intravenous 25% alcohol in glucose solution in gradually reduced amounts. Another group demonstrated good results with triflupromazine hydrochloride in treatment of acute alcoholics.

Much has been written about the effect of tranquilizing drugs in potentiating the effect of alcohol. Meprobamate, although a hypnotic and not a tranquilizer, has been shown to potentiate the effect of alcohol. Recently, a study was made on the effect of paraldehyde in this same regard. It was concluded



that it was questionable whether it was safe to give paraldehyde to individuals under the influence of alcohol.

The report of a recent study concludes that an intravenous injection of amino acids accelerates the rate of alcohol disappearance in the blood.

Miller and Dvorak reported a method of group conditioning in which four patients were simultaneously conditioned to aversion to alcohol. They concluded that group conditioning is not only possible but has certain advantages over individual conditioning. Minto and Roberts reported experimental work and prolonged use of Temposil in twenty-seven patients, showing that it did not produce the unpleasant side effects seen with disulfiram. Also, such reactions as occur can be rapidly minimized by intravenous injection of an antihistamine, whereas disulfiram reactions are not easily modified. Temposil's main disadvantage is the increased desire to drink in the early stages of alcohol-Temposil reactions, but this can be overcome by close observation of the test reactions before beginning long-term use.

Scott, in a study of 143 alcoholics (male and female), all divorced, concluded that sexual immaturity was the basic characteristic of alcoholics; although actively heterosexual, they seem to be unable to take on the responsibility of a permanent relationship.

\* \* \* \* \*

#### Mast Cells and the Gastrointestinal Tract

Sumner C. Kraft MD and Joseph B. Kirsner MD PhD, Department of Medicine, University of Chicago, Chicago, Ill. (Address requests for reprints to: Dr. Joseph B. Kirsner, 950 E. 59th St., Chicago 37, Ill.)  
Gastroenterology 39: 764-770, December 1960.

Tissue mast cells were first clearly described by Ehrlich more than 80 years ago, but only in the past two decades have workers made great strides in revealing their composition and possible functions. They are of mesenchymal origin and are present wherever connective tissue is found. There is a variation in distribution from species to species, but in warm blooded vertebrates these cells are located primarily around small blood vessels and underlying epithelial, serous, mucous, and synovial membranes. In the mammal, mast cells in toto constitute a mass larger than the liver.

Histochemical studies, chemical analyses, and autoradiographs have yielded a substantial list of substances isolated from, or identified with, the mast cell granule. Among the earliest substances found originating in the mast cells were heparin and histamine. Later, hyaluronic acid, albumin, glycoprotein, polysaccharides, phospholipids, cholesterol, and neutral fats were identified. Among enzymes which have been isolated in homogenates of mast cell concentrates are lipase, alkaline phosphatase, acid phosphatase, and

cytochrome oxidase. Recently, an enzyme with properties resembling chymotrypsin has been demonstrated.

Many theories have been advanced for the function of mast cells in the normal organism. As newer chemical substances have been identified with the mast cells, additional functions have been postulated. Probably, the most basic—and perhaps the most important—function of mast cells will prove to be their role in production and maintenance of connective tissue ground substance. Analysis of the major constituents of ground substance considered to be of local origin reveals a number of acid mucopolysaccharides, including hyaluronic acid and heparitin sulfate, both probably present in mast cells.

The possible role of histamine and serotonin in normal gastrointestinal function is yet to be elucidated. Histamine has received wide attention with respect to the mechanism of gastric secretion. It would not seem unreasonable to implicate the histamine-laden mast cell granules in gastric secretion when they are found in great abundance in the stomach mucosa and submucosa. There has been no correlation of mast cell counts and tissue serotonin levels except in the rat and mouse. However, although their roles are not yet completely and precisely defined, serotonin and its precursors apparently are integral parts of the complex biochemical-anatomical mechanisms regulating both gastrointestinal secretion and motility.

Among other functions, it has been suggested that mast cells in the area of gastric ulceration and cancer may be functioning primarily as a source of hyaluronic acid; in normal stomachs, however, the mastocytes adjacent to parietal cells may be serving as storage depots for histamine, needed as a mediator in the process of gastric secretion.

Divergent opinions also exist in studies of the mast cell in the small and large intestine, but there seems to be a progressive reduction of mast cell numbers along the alimentary canal. One group has proposed a pathogenic theory of ulcerative colitis based on the histamine-release phenomena of the mast cell. In this concept, the term "histamine-release" referred not only to liberation of histamine but also to that of heparin and hyaluronic acid. The latter was theorized to cause an alteration of intercellular cement so that inflammatory fluids and their contents might pass through into surrounding tissues. Liberated histamine presumably caused vascular congestion and muscular spasm. Negatively charged heparin theoretically acted to repel similarly charged leukocytes prior to development of an extensively ulcerated state. Furthermore, with psychosomatic reactions, augmented barrages of nervous impulses during stress were considered to induce excessive production of acetylcholine in the colon with resultant histamine-release phenomenon.

Considerable interest has developed in the possibility that ulcerative colitis might involve some type of antigen-antibody reaction, possibly a form of autoimmunization. Widespread degranulation of mast cells has been observed in relation to antigen-antibody reactions. Whether the degranulation process is



a primary factor in mediating the antigen-antibody reaction, or whether this is merely a secondary manifestation of a hyperimmune phenomenon, remains to be seen.

There is little agreement in the literature concerning a possible relationship between mast cells and endocrine gland function, but administration of ACTH and adrenal corticoids decreases the number of mast cells in various tissue sites. In one study in the rat it was shown that hydrocortisone prevented gastric ulceration normally resulting from release of histamine and mast cell degranulation. This suggested that pathogenesis of such gastric ulceration involved more than histamine stimulation of gastric acid secretion and could represent a local anaphylactic reaction involving other chemical mediators, such as serotonin and hyaluronic acid, as well. In this case the effect of the steroid would be to prevent anaphylactoid inflammation. These observations lead to the question: Is the beneficial effect of ACTH and the corticosteroids in granulomatous disease of the intestinal tract, regional enteritis, and ulcerative colitis also on the basis of suppression of a hyperimmune process? If so, what is the role of the tissue mast cell in mediating these pathologic reactions? The answers to these and many other questions await results of future research.

\* \* \* \* \*

#### Stimulus to Collateral Circulation

H. T. John MB and Richard Warren MD, Surgical Service, West Roxbury Veterans Administration Hospital (and Department of Surgery, Harvard Medical School), West Roxbury 32, Mass. Surgery 49: 14-25, January 1961.

The capacity of arterial disease to interfere with flow of blood to a limb depends largely on the efficiency of the collateral circulation. The growth of the vessels which form these compensatory pathways can be divided into two phases—that phase which occurs in the first minutes after the arterial block and permits survival of the part, and the other phase which proceeds slowly over the ensuing weeks and months and allows the function to improve. Much investigation has been made of the former but little of the latter. In general, four main theories have been held to explain the stimuli responsible for growth of collateral vessels: increase in the pressure gradient around the block, increase in blood flow around the block, release of vasoconstrictor tone in collateral vessels, and accumulation of metabolites in tissues distal to the block. It has been suggested that all four factors may act together.

The authors were particularly concerned with the question of whether the stimulus present immediately after occlusion was continued until collateral vessels were fully developed. Extensive experiments were carried out on dogs.

Concluding from observations made in their experiments, the authors believe the initial stimulus to collateral development to be pressure gradient alone. The pressure gradient becomes very small a few hours after a femoral block in the canine hind limb and seems but a small stimulus to the continued development of collateral vessels. In the later stages after femoral occlusion, collateral vessels on an amputated side are smaller than those in the intact limb. The collateral vessels in an immobilized limb behave in a like manner.

These and other results suggest that the stimulus to later collateral growth has some connection with muscle bulk or muscle activity. Recent studies have shown that, in many normal and claudicating limbs, exercise leads to a diminution, or even a disappearance, of digital pulses in the foot. These studies led to consideration of the possibility that muscle affected collateral development by inducing a fall in pressure below an arterial block when in a state of activity, thus increasing the pressure gradient by decreasing the peripheral resistance.

Various findings suggest the sequence of events which follows acute occlusion of an artery. Normally there is very little pressure gradient in a main limb artery. After occlusion of such a vessel there is a sudden fall of pressure distal to the block which introduces a pressure gradient in the small muscle vessels of the midzone. These vessels connect the branches of the main stem and normally carry little blood. After the production of a gradient an increase in quantity and rate of flow in these collateral vessels leads to their dilatation and then to hypertrophy. As the channels dilate, the pressure gradient is reduced by an increasing mean pressure below the block which continues until a level is reached which is approximately that of the previous diastolic pressure. This may well be the pressure necessary to fully restore the resting flow to the limb.

Pressure studies made during muscle activity suggest that further collateral vessel enlargement depends upon intermittent increase of the pressure gradient caused by a fall in blood pressure distal to the block. This fall may be due to sudden arteriolar dilatation in the initial stage of muscle activity, increasing the vascular bed to a degree beyond the capacity of the existing collateral vessels to fill. The increased gradient causes an increased rate of flow through the anastomotic channels which respond by further enlargement and thus the distal blood pressure returns to its previous value. It is possible that only sudden changes in the capacity of the vascular bed are capable of influencing the pressure gradient sufficiently to effect collateral enlargement.

\* \* \* \* \*

Chance only favors the mind that is prepared. —Louis Pasteur



Roentgenography and Upper GI Bleeding

Gilbert W. Heublein MD, Gerald L. Baker MD and Robert H. Roy MD, Hartford Hospital, Hartford, Conn. Acute Upper Gastrointestinal Bleeding Roentgenologically Considered. Amer J Roentgenol 84: 1003-1027, December 1960.

In upper gastrointestinal bleeding, opinion varies among surgical and medical colleagues as to the efficacy of the roentgen examinations. Also it varies from one medical center to another. Most radiologists feel that there are manifold advantages to early diagnosis. Certainly, patients with esophageal varices should not be subjected to needless exploratory laparotomy and, conversely, neither should a bleeding peptic ulcer be treated by means of Blakemore balloon tamponade.

The aim of early roentgen study in cases of upper gastrointestinal hemorrhage is to determine the site of bleeding in order that prognosis can be evaluated and a more definite course of therapy instituted. The study should be conducted in such a manner as to avoid an increase in bleeding. Therefore, after the patient has been transferred to the roentgenographic table on a draw-sheet, examination is accomplished with great care in the recumbent position with little or no palpation.

Suffice to say that the study should be carried out calmly and without haste by a well accommodated examiner who, preferably, is interested in disease of the upper gastrointestinal tract.

In the authors' experience, during a 24-month period there were 208 hospital admissions in which acute upper gastrointestinal bleeding played a definite part in the primary diagnosis. Their study concentrated on 166 of these patients who presented more severe bleeding; of these, 47 (28.3%) required definitive surgery, the remaining 119 (71.7%) were treated medically.

In general, the more active the bleeding, the more frequently surgical intervention became necessary. The average delay between admission and completion of an upper gastrointestinal study was 3 days for the series. In the surgically managed patients, this interval was shorter (2.5 days) as compared to the medical group (3.1 days). The roentgen examination was performed within 24 hours in 23% and within 72 hours in 64% of the patients. This indicates a somewhat more conservative attitude in performing roentgen studies than in some other clinics. Eighteen of the entire group were operated on without benefit of an immediate upper gastrointestinal roentgen study. However, 11 of these patients had had roentgen examinations previously which had demonstrated the probable site of bleeding; the diagnosis was confirmed by surgery in all cases.

It is interesting to note that in only 3 cases (6.4%) was there no point of bleeding found at surgery or in the surgical specimen on pathologic examination.

In the surgical series, if the 11 patients who had had x-ray studies before surgery are included, 40 (85%) of the surgically managed group were examined before surgery; the roentgen diagnosis was confirmed in 34 representing 85% degree of accuracy. If the 3 cases in which no bleeding point was found were also included, then roentgenographic accuracy approximated 92%.

A higher percentage of patients in the medical group had upper gastrointestinal roentgen studies. However, the number of cases in which the final diagnosis was based upon the roentgen diagnosis is relatively small—54 cases or 51.4%. If 34 cases in which the roentgen diagnosis was "deformed and irritable duodenal bulb without definite evidence of ulcer" were included, then the "accuracy" of roentgen diagnosis would approximate 84% in the medical group and 82% in the series as a whole. Eight deaths in 166 admissions gave an over-all mortality rate of 5%—4.2% in the surgical group and 5% plus in the medical group.

The average age of patients in this series was 57 with a range from 17 to 89 years. The average age of the surgically managed patients was slightly lower (51) than of the medically managed patients (58). The average delay between admission and surgery was 7 days.

It would appear from the literature and the authors' experience that a roentgen study of upper gastrointestinal bleeding may offer much advantage. The authors are in definite agreement with the opinion that an emergency nonpalpatory fluoroscopic-roentgenographic study is definitely less hazardous to the patient than exploratory laparotomy when blind search is made for an ulcer crater. Also it is definitely less dangerous than esophagoscopy and gastroscopy and should precede rather than follow such procedures.

The position of the peptic ulcer in relation to one of the gastroduodenal arteries will determine the magnitude of bleeding. The degree of atherosclerosis and presence or lack of contractility of the vessels implicated will determine the quantity of blood lost over a period of time or the rate of loss. Other things being equal, therefore, one might expect more serious bleeding in patients over 50 years of age with gastric ulcer or ulcers.

If the clinician desires roentgen study, there should be no hesitation in performing a careful examination as soon as the patient is stabilized as to blood volume. The patient must be conscious and should, of course, be able to swallow.

Since peptic ulcers heal rapidly, it would seem that roentgen examination should be carried out at the earliest possible moment after apparent cessation of bleeding. Any undue delay which is introduced will interfere with the accuracy of diagnosis. The average time interval between admission and roentgen examination in the hospital of the authors' study is between 60 and 72 hours. If the mortality of gastrectomy can be reduced by laparotomy done within 48 hours, then certainly the delay between admission and roentgen examination can and should be reduced with benefit to the patient.

\* \* \* \* \*



### Mild Cholera

CAPT Francis M. Morgan MC USN, LTCOL Oscar Felsenfeld MC USAR, et al, U. S. Naval Medical Research Unit No. 2, Taipei, Taiwan. A Study of Patients with Mild Cholera in Bangkok, Thailand, Spring, 1959. Amer J Hyg 72: 250-260, September 1960.

In many reference manuals cholera is considered a disease only when it is manifested by severe symptoms consisting of profuse diarrhea and vomiting with subsequent dehydration, acidosis, and collapse. There is usually little or no mention of the mild or low-grade form of the disease which has been designated "choleraic" or "cholerine" diarrhea. Symptoms of low-grade cholera may be so mild that patients do not seek hospitalization or treatment. Consequently, many of these cholera cases remain undetected.

It seemed desirable, therefore, to study patients in an area known to be endemic for cholera in order to establish a definite etiology, and to compare the clinical findings in mild cholera cases with those in diarrheas of other microbial origin. The outbreak of cholera which occurred in epidemic proportions in Bangkok, Thailand, in 1958 and early part of 1959, offered the opportunity for such a study.

The clinical picture of mild cholera cases was indistinguishable from that in diarrhea caused by salmonella or shigella organisms. Patients from whom no pathogens were isolated also followed the same clinical pattern. Severe shigellosis did not occur in this series and salmonella infections produced only gastroenteritis. Even the illnesses of two persons with *S. typhosa* infections were not severe and lasted less than 48 hours.

The mildness and short duration of the sickness in practically all patients with diarrhea observed during this study is not readily explained. It is known that in localities where shigellae and salmonellae are highly endemic, often only a rather mild enteritis or colitis will be produced by these organisms, with rapid and spontaneous recovery. This happens particularly in long-time residents. Perhaps in highly endemic areas repeated infections produce a certain degree of acquired resistance which renders some protection against the particular enteric organism, reducing the severity and duration of the illness. This pattern may also be followed by cholera for it is not unlikely that cholera has been present during inter-epidemic periods in Thailand. In two instances the nature of the illness suggested that the etiologic agent could have been staphylococcus; however, cholera vibrios were isolated.

Action of antibiotics and chemotherapeutics on cholera vibrios has been the subject of much controversy during recent years. Severe cholera in man is not relieved by antibiotic therapy. Since rehydration and replacement of electrolytes have proved eminently satisfactory in cholera and have

not resulted in extended shedding of vibrios, no advantage is seen in use of antibiotics in this disease.

In the cases reviewed, initial and primary therapy of all diarrheal cases was intravenous replacement of fluid and electrolytes which had been lost through diarrhea and vomiting. However, since the disease was usually self-limited, it appeared that the majority of patients would have been able to correct their own fluid and electrolyte deficiencies by oral intake even though convalescence may have been prolonged.

\* \* \* \* \*

### Arterial Wall in Atherogenesis

Henry Haimovici MD and Nelicia Maier MD PhD, Montefiore Hospital, New York City. Role of the Arterial Wall in Atherogenesis. Arch Surg 82: 1-7, January 1961.

Ever since 1913, when Anitschkow reported having induced in the rabbit atheromatous lesions by cholesterol feeding, a great amount of clinical and experimental evidence has been accumulated showing that atherosclerosis is the result of an abnormal lipid metabolism. In contrast to evergrowing literature dealing with chemical changes of the circulating blood, there is surprisingly little information concerning the role played by the arterial wall in atherogenesis. Based on several years of laboratory experience, the authors conclude that arterial tissue per se may well play a greater role in atherogenesis than is generally assumed.

Many factors appear to be involved in pathogenesis of atherosclerosis; their degree of importance is not yet fully assessed. However, they may be classified into two groups—primary and secondary. The primary factors are: (1) lipid metabolism, (2) arterial wall metabolism, (3) intimal permeability, and (4) genetics. Secondary factors are: (1) arterial hypertension, (2) hydraulic phenomena, (3) hormones, and (4) age. The principal purpose of this classification formulated by the authors is to integrate the role of arterial wall metabolism into the broader picture of the problem of atherogenesis.

Structurally, the arterial wall is a complex organ. Its three layers made up of several cell types are endowed with different functions and display different metabolic activities. Of these, the intima plays undoubtedly the major role in atherogenesis.

Presence of cholesterol and other lipid complexes in atheromatous lesions as demonstrated by pathologic and biochemical studies are the basis for the current pathogenesis implicating these substances in causation of atherosclerosis. While this relationship is widely accepted, the mechanism whereby cholesterol and various lipids reach the subintimal region remains largely unresolved. These questions reflect the magnitude of the gaps in current knowledge:



1. What is the origin of cholesterol and other lipids found in the early atheromatous lesions?

2. If it is exogenous, what is the mode of their penetration into the arterial wall?

3. Is there an intramural arterial synthesis of these substances, and, if so, what is the relative role of this disturbed arterial metabolism in atherogenesis?

In addition to cholesterol, other lipids—some as yet not clearly defined—play various roles in the process of atherogenesis. Cholesterol and lipid complexes found in atheromatous lesions may come from three sources: (1) exogenous, (2) endogenous, and (3) local. The role of exogenous substances is based on their high blood levels observed in experimental animals and man. In this regard, in human subjects, a great many studies of blood cholesterol levels in man have failed to establish unequivocally the concept that hypercholesterolemia is a prerequisite for atherogenesis.

The role of exogenous cholesterol may not be essential to development of atherosclerosis—except in most animal experimentation—since sufficient endogenous cholesterol is synthesized in the liver and other organs. The amounts of endogenous cholesterol are determined by a number of factors of which heredity seems to play an important part. Development of atherosclerosis may occur as a result of an interplay between exogenous and endogenous factors.

The third possible source of cholesterol and lipids may have its origin in the arterial tissue itself. The changes in chemical composition of the wall are largely a reflection of its plasma environment. This interrelationship is the basis of the filtration concept of atherosclerosis which has many proponents and has support in some direct, but mostly indirect, evidence.

While filtration of atherogenic substances through the arterial wall may not be the decisive or only factor in atherogenesis, it may play an important role by allowing the building stones for the lipids to pass through the endothelium of the arterial wall. It is most likely that the endothelial permeability is not a passive phenomenon. However, many fundamental facets are still lacking.

First of the unanswered aspects is the question as to how, and under what chemical form, cholesterol and other lipids enter the arterial wall. Second, since formation of atheroma may result from an imbalance between the rate of deposition and that of removal of mural lipids, the question arises as to the cause of such an imbalance. Third, arterial tissue response to such foreign substances is not well defined and needs greater emphasis. Finally, the question as to whether the changes in the subintimal ground substance and the fibroblastic proliferation precede, or are secondary to, lipid deposits brings up an important facet of pathogenesis. A recent investigation dealing with biochemical observations of human atherosclerosis has disclosed that the earliest alterations were increases in collagen or elastin in the intima. These changes appear to precede the concentration of lipids.

The arterial wall is not merely a passive tissue; it exhibits respiration, glycolysis, oxidative phosphorylation, and many other metabolic activities which include the capability of synthesizing the chemical components of atheroma.

The mechanism governing the arterial metabolism is a complex one. It is dependent on both local and systemic influences. Of these, hormonal and enzymatic factors may play an important role. Estrogen is known to block deposition of cholesterol into connective tissue. Similarly, cortisone retards, while hyaluronidase enhances, lipid deposition in the arterial tissue and propylthiouracil decreases it. In some animals, hypothyroidism is a necessary step for inducing atherosclerosis by hypercholesterolemia. Another important gland is the pancreas; understanding the mechanism whereby diabetes mellitus induces and aggravates atherosclerosis would be a fundamental step.

Enzyme activities in the arterial tissue have been demonstrated, particularly with regard to respiration, glycolysis, and phosphorus metabolism. The authors' studies have indicated that metabolic alterations of the arterial tissue are associated with development of atherosclerosis. At an early stage, the arterial tissue reacts by an increase in both oxidative and esterase activity, while at a later stage a decrease takes place. The early phase may be the result of an adaptation or stress phenomenon; the later phase may be attributed to fibrosis and degenerative changes accompanying "death" of tissue.

Still another factor in understanding the development of atherosclerosis is that a basic biologic dissimilarity seems to exist between specific aortic segments in relation to susceptibility to atherosclerosis. Results of some transplantation studies involving thoracic and abdominal aortic segments indicate that the susceptibility of arterial tissue to atherosclerosis may not be influenced by its location, but is rather an inherent biologic property of the arterial tissue itself.

\* \* \* \* \*

#### Pathogenesis of Multiple Sclerosis

G. Pálffy and F.T. Mérei, Department of Neurology and Psychiatry, University of Pécs Medical School, Pécs, Hungary. The Possible Role of Vaccines and Sera in the Pathogenesis of Multiple Sclerosis. *World Neurology* 2:167-172, February 1961.

Cases in which multiple sclerosis first appeared or was aggravated after administration of vaccines or sera are of interest insofar as they lend support to the theory of the neuroallergic origin of multiple sclerosis. There are relatively few reports of such cases. The authors report 8 cases which call attention to the fact that neurologic complications caused by vaccines or



sera may sometimes associate themselves with further neurologic signs and symptoms only years later, and then form the picture of multiple sclerosis. These further developments may be provoked by renewed use of the same or other vaccine, by pregnancy, by an infectious disease, or by exposure to cold or isolation, or they may manifest themselves without any eliciting factor.

Some of the cases reported by the authors showing multiple foci occurring after use of sera and vaccines exhibited remarkable improvement and even complete recovery; in others, the outcome was fatal. Both types might be considered disseminated encephalomyelitis. As some of the patients later developed spontaneous periodic deteriorations, the diagnosis of multiple sclerosis seems proper. Also, with regard to their cases, the authors concur with the opinion that multiple sclerosis may be called chronic disseminated encephalomyelitis.

The cases presented support the theory of allergic pathomechanism in genesis of multiple sclerosis. The theory is further confirmed by the observation that patients with multiple sclerosis frequently suffer also from other allergic diseases which often are in an active phase when the symptoms of multiple sclerosis develop.

Dealing with neurologic sequelae of prophylactic inoculations, Miller and Stanton stated that distribution of the postvaccinal and serogenetic lesions "shows some correspondence with that seen in the neurologic complications of the relevant infection." It is a well known fact that there are some inoculations after which the same neurologic complications nearly always develop. It cannot be asserted, however, that a particular kind of inoculation can be blamed for localization of the neurologic process.

Knowing that neurologic complications following use of prophylactic inoculations may be as grave as the clinical pictures described in the authors' report, they raise the question: In view of the danger of provoking a neurologic complication, is it permissible to give prophylactic inoculations at all? The answer is that abolishing prophylactic inoculations could not seriously be proposed. However, the authors consider the typhoid vaccination suggested by Wagner-Jauregg as treatment for multiple sclerosis to be harmful. In addition, use of vaccines and sera in the presence of allergic diseases, especially recent allergic manifestations, would seem to require consideration.

Heteroprotein therapy may be harmful on theoretic grounds, too; it causes the same alterations in serum proteins as can be observed during a relapse of multiple sclerosis—a fall in gamma globulin and an increase in alpha one and alpha two globulins.

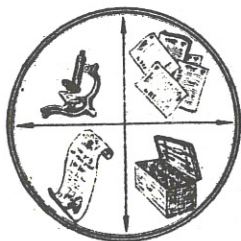
\* \* \* \* \*

Truth is incontrovertible . . . panic may resent it . . . ignorance may deride it . . . malice may distort it . . . but there it is. —Winston Churchill

### IN MEMORIAM

Roberts, Martin E. LT MSC USN (Ret)	
Jackson Memorial Hospital, Miami, Fla.	16 November 1961
Andrews, Spencer R. CWO2 USN (Ret)	
U.S. Naval Hospital, Portsmouth, Va.	16 December 1960
Brown, Claude E. LCDR MC USN (Ret)	
U.S. Naval Hospital, Oakland, Calif.	16 December 1960
Brown, Ernest W. CAPT MC USN (Ret)	
U.S. Naval Hospital, Bethesda, Md.	23 December 1960
Thompson, Edwin B. LT MSC USN (Ret)	
Coral Gables, Fla.	26 December 1960
Boyden, Robert C. CAPT MC USN (Ret)	
U.S. Naval Hospital, Oakland, Calif.	13 January 1961
Schwartz, Walter H. CAPT MC USN (Ret)	
Mt. Carmel Hospital, Columbus, Ohio	13 January 1961
Galbraith, Robert G. Jr, LT MC USN	
USS SARATOGA	23 January 1961
Flower, Charles F. RADM MC USN (Ret)	
U.S. Naval Hospital, Oakland, Calif.	27 January 1961
Massey, Elizabeth W. LT NC USN (Ret)	
Conway, N.H.	6 February 1961
Bacon, Sankey CDR MC USN (Ret)	
Methodist Hospital, Rochester, Minn.	11 February 1961
Michael, William H. RADM MC USN (Ret)	
Suffolk, Va.	14 February 1961

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## MISCELLANY

### Mobile Surgical Teams

Past experience has demonstrated the value of mobile surgical teams assigned to the operating forces of the Navy and Marine Corps for the purpose of expanding the surgical capability of these forces under emergency conditions. In view of the value and mission of these teams, they have been included as a medical element in disaster control measures whether damage results from natural phenomena or enemy attack. To make surgical teams



immediately available to the operating forces for disaster control measures, the Chief of Naval Operations has directed the Bureau of Medicine and Surgery to organize such teams.

Specifications implementing organization of mobile surgical teams are set forth in BUMED INSTRUCTION 6440.1A, 28 November 1960. The teams are to consist of two male Medical officers qualified in general surgery, one male Medical officer qualified in anesthesiology, and ten male hospital corpsmen (six operating room technicians, one field medical technician, one laboratory technician, and two general service). Where practicable, one of the Medical officers is to be a senior officer with field experience. The assigned personnel shall be trained as a team in order to perform traumatic surgery under emergency conditions.

Grouping of material required to initially outfit a surgical team, assembled in the Military Medical Supply System, is known as a "Surgical Team Supply Block," and provides the material necessary to operate with existing facilities or semi-independently for a period of approximately 10 days. A resupply "block" for additional 10-day periods is also provided.

Mobile surgical teams are to be organized and available at Naval Hospitals, Chelsea Mass., St. Albans, N.Y., Philadelphia, Pa., Bethesda, Md., Portsmouth, Va., Charleston, S.C., Great Lakes, Ill., San Diego, Calif., Oakland, Calif., and Yokosuka, Japan. The commanding officer of each hospital sponsoring a surgical team will be responsible for administration of the team while it is based at the hospital. When the team is deployed for operation with a fleet or overseas unit, the operating force commander will be responsible for administrative and logistic support.

Whenever and wherever situations develop that require the services of a team, competent authority shall submit requests for deployment of such teams to the Chief of Naval Operations. CNO will then evaluate the situation and authorize BuMed to direct deployment of an appropriate team. With equipment and personnel in a state of readiness, it is expected that a well-equipped, well-trained team could be at the site of an emergency or disaster in relatively short time.

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BUMED INSTRUCTION 6270.4A

6 January 1961

Subj: Advisory Center on Toxicology

The Advisory Center on Toxicology (formerly the Toxicological Information Center) of the National Academy of Sciences-National Research Council will provide toxicity information and advice on new as well as on older materials used in various processes employed by the services. Naval Medical activities having toxicity problems which appear appropriate for referral to the Advisory Center shall forward all requests to BuMed for coordination.

BUMED NOTICE 6820

6 January 1961

Subj: Handbook of the Hospital Corps, U. S. Navy (1960), NAVMED P-5004

This directive announces that the 1960 revision of Chapter II, Anatomy and Physiology, of subject Handbook is now available in the Navy Supply System and may be obtained in accordance with provisions of BUMED INST 6820. 10 for insertion in the loose-leaf binder originally issued.

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National Industrial Health Conferences

National Conferences on Industrial Health will be held concurrently in Los Angeles and Detroit during the week beginning 9 April 1961.

The Los Angeles conference is sponsored by the Industrial Medical Association and the American Association of Industrial Nurses. The Detroit Industrial Hygiene Conference is sponsored by the American Industrial Hygiene Association and the American Conference of Governmental Industrial Hygienists. As indicated by the titles of the sponsoring associations, the Los Angeles Conference will be of greatest benefit to industrial physicians and nurses while the Detroit Conference will be of greatest benefit to industrial hygienists.

These conferences will provide information concerning new developments, technics, methods, and other pertinent information on industrial medicine and industrial hygiene which will contribute to the professional growth of attendees. An additional valuable benefit to Navy personnel attending one of these conferences will be the opportunity of exchanging ideas on industrial health problems with Navy colleagues and other members of their profession. Prominent industrial physicians and industrial hygienists representing private industries, universities, and government agencies throughout the United States and foreign countries will be present at these conferences.

The purpose and subject of these meetings is related to the primary professional duties of military and Civil Service industrial physicians and industrial hygienists. The potential benefits of attendance are consonant with the criteria and policies set forth in SECNAV INSTRUCTION 4651.14A, 14 August 1959, SECNAV INSTRUCTION 4651.8C, 13 August 1959, and NCPI 410.7.

It is suggested that industrial Medical officers and industrial hygienists apply to their Commanding Officers to attend one of these National Conferences. As in previous years, expenses connected with an individual's attendance must be borne by the local Command. (OccMedDiv, BuMed)

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American Board of Obstetrics and Gynecology  
Examinations - Part II

The next scheduled examinations (Part II), oral and clinical, of the American Board of Obstetrics and Gynecology, for all candidates, will be conducted at the Edgewater Beach Hotel, Chicago, Ill., by the entire Board, 8 - 15 April 1961. Formal notice of the exact time of each candidates' examination will be sent him in advance of the examination dates.

Candidates who participated in the Part I Examinations will be notified of their eligibility for Part II Examinations as soon as possible.

The deadline for receipt of new and reopened applications for the 1962 examinations is 1 August 1961. Candidates are urged to submit their applications as soon as possible before that time, addressed to: Office of the Secretary, Robert L. Faulkner MD, 2105 Adelbert Road, Cleveland 6, Ohio.

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From the Note Book

Rear Admiral Kenney Assumes Office as Surgeon General. On 14 February 1961, in the office of the Honorable John B. Connally, Secretary of the Navy, Rear Admiral Edward C. Kenney, Medical Corps, U.S. Navy, took the oath of office as Surgeon General of the Navy to serve for a period of four years. The oath was administered by Rear Admiral W. C. Mott, Judge advocate General of the Navy, before a gathering of distinguished guests. (A message from Admiral Kenney to the members of the Medical Department and announcement of assignment of Deputy Surgeon General is expected to be presented in the next issue of the News Letter as the message was not available by press time for the current issue.)

Committee on Aviation Pathology. The Joint Committee on Aviation Pathology of the Armed Forces of the United States, United Kingdom, and Canada held its 7th Annual Business Meeting at the Armed Forces Institute of Pathology recently. The committee studies the role pathology plays in aviation and flight safety, and acts as a focal point for the distribution of information on the subject. Wide utilization of high performance, jet aircraft by civilian airlines as well as military makes the findings of the committee increasingly important. Wing Commander D. O. Coons RCAF, Staff Officer, Medical Service, Canadian Joint Staff, was elected 1961 Chairman of the committee; CAPT Carl E. Wilbur MC USN, currently assigned to FAA, is the Navy representative on the committee. (TLO AFIP)

Staff Activities - USNH San Diego. CAPT Clyde W. Norman MC USN discussed two cases at the Histopathology Seminar of the meeting of American

Academy of Dermatology and Syphilology in Chicago during December 1960, and presented an exhibit, Mucocutaneous Manifestations of Blood Dyscrasias and Hemorrhagic Disturbances.

CAPT V. C. Stratton MC USN has organized and established a course in Mass Casualties and Disaster Control; twelve lectures on the subject have been presented to members of the staff and other activities.

LT D. I. Gottlieb MC USNR recently presented a discussion on Juvenile Delinquency over TV Channel 10, San Diego.

21,000th Baby Born at Jacksonville Hospital. Vickie Lynn Bernath was recently greeted by a 21-gun salute on her arrival at the U. S. Naval Hospital, Jacksonville, Fla. She was the 21,000th baby born at the hospital since the family unit opened in 1943; the event was appropriately celebrated with units at the Naval Air Station, Jacksonville, and the Jacksonville Chamber of Commerce also participating.

Epidemiologic Notes—Influenza and Hepatitis. There have been no reports to date of outbreaks of influenza within the continental United States, although the disease is currently active in other parts of the world—England, Wales, American Samoa, Japan, and elsewhere. The epidemic in Great Britain continues; 699 deaths were recorded in England and Wales during the week ending 28 January 1961. Deaths there are sharply concentrated among elderly persons. Type A<sub>2</sub> is the virus most frequently reported in England while type B is most prevalent in Japan where 300 schools had to be closed in Tokyo because of the epidemic. Reports indicate that no influenza has occurred in the United States Armed Forces or their dependents stationed in Japan. Figures recently accumulated for the United States show that for a 4-week period ending 28 January 1961, the incidence of hepatitis is continuing at a high level. The maximum of the 1954 nationwide epidemic has already been exceeded. (Morbidity and Mortality, DHEW PHS, February 10, 1961)

Glycerolized Frozen Blood. In a Note Book item, News Letter, 20 January 1961, p. 23, referring to work done on glycerolized frozen blood, attention was directed to work done with heparin-saline solution. The authors would like to invite attention to the more important and practical aspects of their work which included studies on blood collected in acid-citrate-dextrose solution and preserved at minus 80 C. Blood collected in this manner and stored for up to 31 months demonstrated no deviation of oxyhemoglobin saturation comparable to that which has been demonstrated for fresh ACD blood stored at 4 C beyond 7 days by conventional blood banking technics. Elton Watkins Jr. MD of the Lahey Clinic was coauthor with T. G. O'Brien LT MC USNR, Chelsea Naval Hospital, of the article which appeared in the Journal of Thoracic and Cardiovascular Surgery, November 1960.



Platelet Transfusions. Studying the effects of platelet transfusions, the authors observed optimal hemostatic activity in a larger number of patients receiving material which was untreated and less than 24 hours old. The minimum volume of packed platelets to be administered in order to achieve these results was 8 ml. Platelet derivatives were ineffective. The technic of platelet transfusions is useful when the correction of bleeding tendency is imperative in acute situations. (G. Raccuglia, F. Bethell, Amer J Clin Path, December 1960)

Penicillin: Oral or Muscular? From data presented, it appears that orally administered (fasting) potassium phenethicillin will produce the same serum concentration as a similar amount of potassium penicillin G given intramuscularly. Assumption of the risks coincident to injection of penicillin now appears to be only occasionally justified with the availability of this newer, acid-resistant, readily-absorbed oral penicillin. (G. Cronk and W. Weatley, Amer J Med Sci, December 1960)

Circulating Tumor Cells in Malignant Melanoma. Circulating tumor cells were found in 18% of 247 peripheral blood specimens obtained from 36 patients with nonresectable malignant melanoma. A direct relationship was found between the rate of growth or appearance of new metastatic nodules and the finding of peripheral circulating tumor cells. A greater frequency of positive specimens and patients with positive specimens was found in the late months of life. (M. Romsdahl, et al, Surg Gynec Obstet, December 1960)

Rheumatic Heart Disease in Children. A 5-year study is presented of 497 children with acute rheumatic fever who were admitted to the United Kingdom-United States cooperative clinical trial of the relative merits of ACTH, cortisone, and ASA in treatment of rheumatic fever and prevention of rheumatic heart disease. Of 497 patients, 89.5% were followed for the complete 5 years. A low death rate was striking; and, at the end of the period, there was no indication that on the treatment schedule used the prognosis had been influenced more by one form of therapy than another. The major factor in determining the incidence of rheumatic heart disease was the status of the heart when treatment was begun. (J. Spence, et al, Circulation, October 1960, Part 1)

Effectiveness of Antidepressants. The authors appraise five antidepressants—isocarboxazid, nialamide, phenelzine, pheniprazine (all MAO inhibitors), and imipramine—and concluded that all were effective agents, generally superior to the amphetamines and phenothiazines in producing remission or relief of primary and secondary symptoms which comprise the depressive syndrome. No serious complications or side effects were produced by the drugs. (J.P. Holt, et al, Amer J Psychiat, December 1960)

Recent Research ReportsU. S. Naval Medical Research Institute, NNMC, Bethesda, Md.

1. Labilization of Ester Bonds in Aminocyclitol Derivatives II. Polyacetates of Deoxystreptamine. MR 005.06-0010.01 Report No.19, 8 July 1960.
2. The Experimental Host Range of the Arthropod-Borne Animal Viruses in Arthropods. MR 005.09-1401.03 Report No.1, 8 July 1960.
3. Copolymers of Adenylic and Uridylic Acids. MR 005.06-0001.01 Report No.12, 19 August 1960.
4. Some Aspects of Variation in Rickettsial Virulence. Lecture and Review Series No.60-7, 21 September 1960.

U. S. Naval Medical Research Unit No. 3, Navy #540, % Fleet Post Office, New York City, New York

1. Diarrhea in an Alien Student Population in Cairo, U. A. R. MR 005.09-1202.3.01, June 1960.
2. Improved Electrophoretic Resolution of Alkali-Resistant Hemoglobins in Starch-Gels Using Colloidal Electrolytes. MR 005.06-0051.2.02, June 1960.

Dental Research Facility, Dental Department, U. S. Naval Training Center, Great Lakes, Ill.

1. Clinical Significance of Pleuropneumonia-Like Organisms in the Oral Cavity. MR 005.12-5004, June 1960.

U. S. Naval Medical Field Research Laboratory, Marine Barracks, Camp Lejeune, North Carolina

1. The Effectiveness of Tourniquet, Incision, and Suction in Snake Venom Removal. MR 005.09-0020.1.3, November 1960.

U. S. Naval Medical Research Laboratory, U. S. Naval Submarine Base, New London, Conn.

1. Patterns of Reaction to Stress as Revealed by a Factor Analysis of Autonomic-Change Measures and Behavioral Observations. Report No.312 NM 23 02 20.03.03, 26 May 1960.
2. Some Primary Auditory Abilities in Pitch and Loudness. NM 22 01 20.02.02 Report No.316, 15 September 1960.

U. S. Naval Medical Research Unit No. 2, APO 63, San Francisco, Calif.

1. Nematode Parasites of Vertebrates of East Pakistan. III. Camallanidae from Fish, Amphibia, and Reptiles. MR 005.09-1601.5 Report No.3, 23 March 1960.
2. Studies of the Gastrointestinal Viral Flora of Cholera Patients. MR 005.09-1040.2 Report No.2, 15 April 1960.



## DENTAL



## SECTION

Study of Dry Sockets

R. I. Erickson DDS, D. E. Waite AA, DDS, MS, and R. H. Wilkison DDS, College of Dentistry, State University of Iowa, Iowa City, Iowa. Oral Surg, Oral Med, Oral Path 13: 1046-1050, September 1960.

Localized osteitis, or "dry socket," as it is more commonly called, has always been a thorn in the side of the exodontist. His inability to prevent this complication and his limitations where effective treatment is concerned have caused him to suffer along with the afflicted patient.

The acuteness of the problem caused the authors to attempt to determine the main cause of socket complications. Because the lower third molar area is the most frequent site of localized osteitis, it is the logical area in which to concentrate a study of the problem.

A group of unselected patients with third molar impactions of varying severity were evaluated before, during, and after operation. There were 50 men and 46 women, mostly of college age. The only criterion for selection of subjects was the recommendation that impactions be removed. Most patients were seen 24 hours after the operation and then on following days as indicated, at which time the following were evaluated: amount of clot loss, odor, oral temperature, pain, bone exposure, presence of pus, inflammation of the surgical area, and whether the patient said that he had followed postoperative instructions.

Clot breakdown and loss was used as the basic criterion for the severity of socket complications, since its presence is almost invariably connected with the other symptoms of localized osteitis, such as odor, bone exposure, pain, swelling, and lymphadenitis.

Amount of clot loss was determined by the amount of firm, healthy clot remaining in the socket (in other words, that which remained after irrigation and firm wiping-out of the debris with a cotton pellet) as compared to the approximate size of the original defect. The socket was probed with cotton pliers to determine clot consistency.

Significant finding was that in 51% of cases in which clot breakdown occurred, these changes were evident within 24 hours (the first postoperative day). Twenty-three percent of clot-breakdown patients showed changes at 48 hours (the second postoperative day). For various reasons, many of these patients were seen for the first postoperative appointment 48 hours

after surgery. Therefore, it is possible that many of these patients showed changes earlier. The staff felt that early diagnosis and intervention by vigorous treatment of those sockets that showed early degenerative changes made it possible to "head off" or modify severe symptoms and perhaps to shorten the healing course. The authors' method of treatment of localized osteitis consists of:

1. Irrigation of the socket to remove degenerating clot and necrotic tissue.

2. Isolation of the socket by drying involved tissues and placing gauze or cotton rolls on each side of the ridge.

3. Medication: (a) Exposed bone is gently painted with a saturated solution of iodine and guaiacol to desensitize and deodorize the tissues. (b) Analgesics are given systemically for pain. (c) A postoperative dressing consisting of polymyxin B sulfate, 20 mg; bacitracin soluble tablets, 10,000 units; balsam of peru, 2 gm; oil of peppermint, 4 drops; and zinc oxide ointment, 20 gm is inserted into the socket. This dressing serves several purposes. It is soothing because of the zinc oxide; it has a sealing quality against oral fluids and debris because of the ointment; and it is antibacterial. Bacitracin was chosen for gram-positive organisms and polymyxin B for gram-negative organisms. This provides a broad spectrum antibiotic range to retard bacterial growth within the socket. The dressing is changed every 2 to 5 days until healthy granulation tissue is present.

Conclusions. (1) The amount of surgical trauma was again found to be proportional to the degree of socket complications. (2) Indication of clot breakdown in patients developing socket complications was found to be evident after only 24 hours in more than one-half of the cases studied. This permitted earlier intervention of the process. (3) Evidence of granulation tissue of secondary healing was first noted, on the average, 9 and 1/2 days after surgery. (4) Patients who had undergone similar extraction procedures in both sides showed a marked improvement on the second side, both in healing time and in the number of complications.

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#### Dental Department Log

The head of each dental department is required by the Manual of the Medical Department to make provisions for keeping a daily log (also called the dental officer-of-the-day log), which is a complete chronologic record of matters within the purview of the dental department. On ships and stations having only one dental officer, he is solely responsible for preparing and maintaining the dental department log. On those ships and stations where dental duty officers are designated to stand a 24-hour watch, these dental duty officers



are responsible for preparing and maintaining the dental department log, submitting it daily for the approval of the head of the dental department.

The dental department log remains in the dental department spaces and in the custody of the dental duty officer or other dental personnel designated by the head of the dental department. When the log is filled with entries, it is closed out and retained in the department's files for 2 years and then destroyed. The log of a dental command is transferred to the Naval Records Management Center after it is 2 years old.

Entries. All pertinent entries must be made in ink (printing preferred); they should be complete, concise, accurate and should be expressed in standard naval phraseology. The log is a complete daily record by watches in which is described every circumstance and occurrence of importance or of official interest that concerns dental personnel and the operation of the dental department. Officers charged with maintaining the dental department log will normally get adequate guidance from a dental department instruction. Some of the important items for entry in the dental department log include: names and rank or rate of personnel relieved of the watch or assuming the watch; status of dental department personnel (for example, on leave, on sick list); emergency drills; all inspections; afterhours emergency treatment; and any event the recording of which may be valuable for future reference. Any entry made by another officer temporarily relieving the officer of the day must be signed by the officer making such entries.

Corrections, Changes, and Additions. No erasures may be made in the dental department log. When a correction is deemed necessary, a single line is drawn through the original entry so that it remains legible. The correct entry is then inserted in such a manner as to insure clarity and legibility. Corrections, additions, or changes may be made only by the person required to sign the record of the watch and must be initialed by him on the margin of the page. Should the head of the dental department direct a change or addition to the dental department log, the person concerned should comply unless he believes the proposed change or addition to be incorrect, in which event the head of the dental department will enter on the record, over his signature, such remarks as he deems appropriate. No change may be made in the dental department log after it has been signed by the head of the dental department except with his permission or at his direction.

Importance as Evidence. The Manual for Courts-Martial, United States in Chapter XXVII, "Rules of Evidence", states that the following are examples of military records containing entries that may be admissible as evidence under the exception to the hearsay rule that pertains to official records: "Enlisted papers, physical examination papers, outline-figure, and fingerprint cards, morning reports, guard reports, service records, logs, unit personnel diaries, and individual equipment records."

In the past, there has been some dispute regarding the admission of some of these records. Now, however, they are admissible by law as official

records, provided they are kept or maintained according to the rules prescribed for keeping them. The words "rules prescribed for keeping them" refer to a dental department instruction promulgating the information needed by a dental duty officer to execute his duties properly as they relate to maintaining the dental department log.

Thus, the dental department log is an official public document and is admissible in evidence as an exception to the hearsay rule. In view of the important fact that this record may be introduced as evidence in a court-martial, too much emphasis cannot be placed on the need for the responsible dental officer to make proper and complete entries. To be admissible as evidence, the entry or entries in the dental department log must record a fact or event and must have been made by an officer or other person in the performance of an official duty imposed upon him by law, regulation, or custom. Such an officer or other person must have been under a positive duty to know or ascertain through appropriate and trustworthy channels of information, the truth of the matter recorded. With these qualifications in mind, it should be noted that the person having the duty of making the entries described is presumed, prima facie, to have properly performed his duty. This individual need never appear as a witness. It is enough, if all other rules are complied with, for him to attest to a duly authenticated copy.

Entries in Log or Journal of the Ship or Station. In addition, the dental officer, as the head of the dental department of a ship or station, reports to the officer of the deck, officer of the day or other proper official, for entry into the log or journal of the command, any and all important occurrences requiring the attention of the commanding officer.

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Dental Standards for Naval Academy Preparatory School. Prior to transferring personnel to the Naval Academy Preparatory School, U.S. Naval Training Center, Bainbridge, Md., the provisions of Article 6-89 Manual of the Medical Department must be adhered to. This article is quoted in part, "Except for minor or questionable carious areas, all required dental treatment must be completed." Failure to comply works a definite hardship on the student and the dental department at Bainbridge.

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BUMED INSTRUCTION 6630.2B

17 January 1961

Subj: Artificial teeth, facings and backings; local procurement of

This instruction outlines the policies and procedures to be employed in procurement of subject items.



Newly Standardized Dental Items

<u>Stock Number</u>	<u>Item Identification</u>	<u>Unit of Issue</u>	<u>Approx. Unit Price</u>
6520-579-8623	BUR, DENTAL, EXCAVATING, Angle Handpiece, Tungsten Carbide, No. 701: Crosscut fissure, tapered	Each	\$ .45
6520-682-6530	BAND SET, MATRIX, DENTAL, Assorted Tofflemire, Junior Size, Set of 12; For use with retainer, 6520-687-8107	Each	\$ .24
6520-687-7956	MOUTHPIECE, SALIVA EJECTOR, DENTAL, Child Size: For use with Ritter, S.S. White, and Weber models of dental operating unit, 6520-542-1475, 6520-542-1490, and 6520-542-1500, and saliva ejector hose assembly, 6520-542-1980	Each	\$1.20
6520-687-8024	MIRROR, MOUTH EXAMINING, Plane Glass: 5/8 inch diameter. Cone-socket stem, Without handle. For handle, requisition 6520-541-9350	Each	\$ .32

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Open-End Tooth Contracts

Information received from H. D. Justi and Company indicates that some dental facilities are utilizing the exchange privilege of the open-end contract with this company to return large quantities of the Solvent Resistant Teeth for Solvent Resistant Imperial Teeth. The open-end contracts with the manufacturers of artificial teeth and facings and backings were designed to enable activities to augment standard assortments and to preclude generating excesses of teeth. The exchange provision of these contracts is in consonance with the above objectives. The Solvent Resistant Tooth is not an obsolete item and is considered suitable for use.

Continued requests for exchange of excessive quantities of teeth could conceivably result in a sharp increase in the cost of teeth due to the additional service involved.

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### Personnel and Professional Notes

RADM Schantz Honored. At the annual meeting of the Academy of General Dentistry held in Chicago in February 1961, RADM Curtiss W. Schantz, Assistant Chief of the Bureau of Medicine and Surgery for Dentistry, and Chief, Dental Division, was awarded honorary membership in the Academy. Similarly honored were Gerald D. Timmons, Dean, Temple University Dental School, and Raymond J. Nagle, Dean, College of Dentistry, New York University, both outstanding leaders in the dental profession.

Navy Aids National Smile Week. Navy's Mobile Dental Unit No. 1 was recently made available to the New Orleans Dental Association by the Bureau of Medicine and Surgery and the Commandant of the Eighth Naval District, RADM F.B. Warder USN. The Unit, staffed by members of the Dental Association—many of them being members of the Naval Reserve—visited 24 schools and conducted a dental survey. A total of 7089 students were examined. To select candidates for "King and Queen of Smiles," 10 finalists were chosen from the group examined. The finalists competed for the title when the National Smile Week Contest began on 5 February 1961. CAPT C. Iverson, Commanding Officer, U.S. Naval Station, New Orleans, assigned dental technicians C. Hernandez and R. Pepper to Unit No. 1 during these examinations.

Dr. Hardy Lectures at NDS. Irving R. Hardy DMD, Middleboro, Mass., former Professor of Prosthodontics, Tufts University College of Dental Medicine, recently presented a lecture—Anterior Tooth Forms—at the U.S. Naval Dental School, NNMC, Bethesda, Md., as part of the special lecture series presented by the Dental School. Anterior tooth forms and their relation to denture esthetics was discussed. Dr. Hardy has done considerable research in the design and efficiency of various tooth forms for dental prosthetic replacements and has made numerous other contributions in the field of prosthetic dentistry.

CAPT Kasper Presents Paper. CAPT Stephen T. Kasper DC USN, District Dental Officer, First Naval District, recently presented a paper before the Postgraduate Prosthodontic Seminar of the Tufts University Dental School on the subject, Concepts in Centric Relation.

Study Sets Available. Microscopic study sets covering subjects in the fields of general, oral, and veterinary pathology are available for loan to dentists and physicians, civilian and military. Two sets on Dental and Oral Pathology are available; one set—Lesions of the Jaws—has 100 lantern slides in addition to 50 microscopic slides. For complete listing and order blanks, address requests to Director, Armed Forces Institute of Pathology, Washington 25, D. C., Attn: American Registry of Pathology.



Guam Dental Society Elects Officers. The annual election of officers was held by the Guam Dental Society during its monthly meeting in January 1961. Dr. Carlos Comacho, Agana, Guam, was elected President to succeed CAPT William S. Rusk DC USN, Chief of the Dental Service, U.S. Naval Hospital. LT M.S. Burch DC USN, Naval Air Station, was elected Secretary to succeed CAPT W.B. Akerly USAF DC, Andersen Air Force Base. LCDR R.E. Fields DC USN, Naval Dental Clinic, was elected Chairman of the Program Committee to succeed LTCOL G.B. Clifton USAF DC, Andersen Air Force Base. The professional portion of the meeting was a clinic—Conservative Root Canal Therapy—presented by LT Burch.

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## RESERVE



## SECTION

### Physical Examination Requirements

Except when expressly waived by the Chief of Naval Personnel, Naval Reservists will undergo a complete physical examination on the following occasions:

1. Prior to appointment, enlistment, reenlistment, or extension of enlistment (except in cases of extension of enlistment completed by mail).
2. Prior to entry upon active duty, annually while on active duty (officers only), and prior to release therefrom.
3. Prior to active duty for training of more than 14 days' duration, and prior to release therefrom.
4. Prior to attachment to, or association in, a pay status with a pay unit.
5. A satisfactory flight physical examination at least annually for Reservists not on active duty who are engaged in inactive duty training involving actual control of aircraft in flight.
6. At least quadrennially while not on active duty.
7. Prior to promotion.
8. Prior to transfer from the Inactive Status List, if transfer thereto was the result of physical disability.
9. Whenever special examination may be directed by competent authority.
10. Prior to 14 days' training duty in those cases where applicant is in receipt of disability allowance of pension from the U.S. Government.

Limited Physical Examination and Certificate of Physical Condition.

Where physical fitness has been determined by any of the above examinations and the Reservist is not in receipt of a pension or physical disability allowance, the extent of the physical examination prior to entering on 14 days' active duty should be sufficient to determine that the Reservist is physically qualified to perform duties assigned and is free from infectious or contagious disease. Prior to detachment from 14 days' active duty for training, the physical examination shall be sufficient to determine whether the Reservist's health has been adversely affected by the performance of the duty. This physical examination shall be recorded in the health record by simple entry. Each member of the Naval Reserve with the exception of retired personnel and personnel on active duty will be required to submit an annual certificate of his physical condition.

Quadrennial Physical Examinations. When not on active duty, all members of the Naval Reserve, except members of the Retired Reserve, shall be examined physically at least once during each 4-year period based on standards prescribed by the Manual of the Medical Department. Examinations are to be conducted by medical officers of the Regular Navy or Naval Reserve, utilizing Naval Reserve Medical officers not on active duty to the maximum degree. Such 4-year period will be considered as commencing on the day following the date upon which a physical examination was reported on Standard Form 88. Officers who do not report for quadrennial physical examinations when required and authorized shall not be permitted to participate in any phase of the Naval Reserve training program including correspondence courses. Commandants and the Chief of Naval Air Reserve Training have been directed to terminate training duty orders whenever an officer has not reported for a physical examination and 30 days have elapsed since the date the officer was scheduled to report for that examination.

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On-the-Job Training in Submarine Medicine

A 2-week course in On-the-Job Training in Submarine Medicine will convene on 1 May 1961 at the U. S. Naval Medical Research Laboratory, U. S. Naval Submarine Base, New London, Conn. This training will present an up-to-date review of problems relating to submarine medicine, including recent developments in submarine medicine research. Quotas for the course have been allocated to the 3rd, 4th, 5th, and 13th Naval Districts. Male Naval Reserve Medical Corps and Medical Service Corps officer personnel of the above districts are eligible to request orders from their naval district commandant. SECRET clearance is required.

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### Information for Reservists

Official Correspondence. Naval Reservists on inactive duty but attached to, or associated with, a drilling unit shall forward official correspondence via their organization commander. Reservists not attached to, or associated with, a unit shall forward official correspondence via their naval district commandant. The foregoing, however, does not preclude Reserve officers on inactive duty from reporting directly to the bureau or office concerned information which appears to be of special value or official interest. Officers performing outstanding services in this connection, upon recommendation of the bureau or office concerned, will be issued letters of commendation which will form a part of their official records.

Fitness Reports. Fitness reports for Reserve officers are completed for the following types of training:

1. Active duty for training—Completed after periods of training with or without pay.
2. Inactive-duty training—Annual fitness reports are submitted on officers attached to, associated with, or assigned to a paid drill unit or nonpay specialist unit. Also, fitness reports are submitted on officers performing appropriate duty.

Annual Qualifications Questionnaire. Annually, on 30 June, upon receipt of the necessary forms from the cognizant commandant, each Naval Reserve officer on inactive duty completes and submits the annual qualification questionnaire in accordance with instructions promulgated by the Chief of Naval Personnel.

Mailing Address. Mailing address is defined as the address at which a member of the Naval Reserve can be reached quickly at any time by ordinary mail. A member of the Naval Reserve must keep the cognizant custodian of his records informed of his mailing address. Changes of address should be reported as follows:

1. Officers—To commandant holding your records. If affiliated with a pay unit, submit report via your unit commanding officer.
2. Enlisted—To your commanding officer, when affiliated with a pay unit. To commandant holding your records, if you are not a member of a drill pay unit.

A temporary change of residence of 6 months or less does not require a transfer of records. However, if you have a temporary residence but mail cannot be delivered promptly, you should notify the holder of your records of your address at the beginning and end of your temporary residence.

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## PREVENTIVE MEDICINE

### Chagas' Disease

World Health Organization, Palais Des Nations, Geneva, Switzerland.  
Chagas' Disease, WHO Chronicle 14:469-471, December 1960.

Chagas' disease (American trypanosomiasis) is an infection caused by *Trypanosoma cruzi* and transmitted by various triatomines infesting human dwellings. Although it is known to exist throughout the Americas, except in Canada and perhaps Cuba, much remains to be discovered about its true incidence. Ignorance of the magnitude of the problem is the main obstacle in the way of organizing and indeed justifying suitable control programs in countries where mortality and morbidity from other diseases are apparently greater.

Epidemiologic Aspects. It is roughly estimated that at least 35 million people are exposed to risk of infection with *T. cruzi*. If it is assumed that the average infection rate is 20%, then at least 7 million people are infected. Infection of vertebrates, including humans, has been reported from all countries in the region stretching from the United States in the north to Argentina and Chile in the south. It is more frequent in rural areas and small towns, but autochthonous cases are also common in the peripheral zones of cities.

One of the more important vectors is *Triatoma infestans* which is widely distributed over South America with infection rates varying generally from 20 to 30%. The genus of the principal vector changes to *Rhodnius* in the northern part of South America and in Panama and to *Panstrongylus* in certain parts of Peru. In Mexico, some species of the *T. phyllosoma* group are responsible for its transmission.

Domestic animals, particularly dogs and cats, appear to be the most important reservoirs of *T. cruzi*. In some regions the cavy, or guinea pig is of special importance. The forest reservoirs seem to be of limited importance as sources of human infection.

Pathogenesis and Anatomic Pathology. *T. cruzi* is a parasite which multiplies primarily in cells of mesodermal or mesenchymal origin. This form of multiplication itself constitutes a fundamental biologic fact in the life-cycle of this protozoan and in its pathogenic action which is explained as due to a variety of mechanical, inflammatory, allergic, and possibly toxic processes. Among other endogenous or exogenous factors, nutrition and



variations in the virulence of different strains of parasite also seem to be of some importance in aggravating *T. cruzi* infection.

Symptomatology. Chagas' disease appears in two basic forms, one acute and the other chronic, with an intermediate phase between the two. The majority of acute cases occur in young children or among recent arrivals in the endemic areas. The signs and symptoms of the acute forms vary greatly; apart from those observed at the portal of entry, there is usually fever, generalized adenopathy, slight enlargement of the liver and spleen, general infectious symptoms, cardiac enlargement, and various electrocardiographic changes. In the more severe cases there may be signs that the nervous system is affected.

The best known chronic forms are the cardiac ones, usually involving an increase in the size of the heart; electrocardiographic changes are frequent, and severe symptoms of cardiac insufficiency may occur. In addition to the cardiac forms, alimentary forms—particularly mega-esophagus and megacolon—may, at least in some endemic areas, be manifestations of Chagas' disease in its chronic phase. Some observers have reported the existence of chronic neurologic forms.

Mortality in the acute forms has been approximately 10% in certain regions; the lower the age group, the higher the mortality rate, although fatal cases in adults have been reported. In the chronic forms, the symptoms are so varied that many deaths are registered wrongly; the frequent sudden deaths from these forms are usually included among diseases of ill-defined or unknown origin.

Diagnosis. Etiologic diagnosis in the acute phase is based on the detection of *T. cruzi* in the peripheral blood. This should be done by methods employing direct examination of blood or use of stained smears; in some cases more sensitive technics must be used, such as xenodiagnosis, inoculation of laboratory animals, and blood cultures. The precipitin test is positive in a high percentage of acute cases. The agglutination titers of cultures are high in the acute phase, particularly if live *T. cruzi* cultures are used.

These methods have failed in almost all chronic cases owing to the smaller number of parasites in the blood. Here, indirect methods—for example, the complement fixation test—yield better results. It is most important to standardize the antigens and technics used in this test.

In addition to cases which exhibit symptoms permitting clinical diagnosis of Chagas' disease there are many others without typical symptoms in which a diagnosis can be established only by means of laboratory tests. Supplementary examinations, particularly by electrocardiography, radiologic examination and, to a smaller extent, blood tests, can be of great value.

Control and Prevention. The persistence of Chagas' disease is due primarily to badly constructed dwellings; these, in conjunction with primitive habits, favor the breeding of triatomes adapted to human dwellings. For prevention of the disease, therefore, it is essential to improve housing and promote hygienic habits.

Some of the modern residual insecticides have proved effective against the triatomines; gamma benzene hexachloride and dieldrin have proved to be the most effective. However, the latter is highly toxic to man and domestic animals and cannot be used in hen runs and farmyards which are important breeding places for some species of *Triatoma*. BHC has satisfactory triatomocidal effects without having the drawbacks of toxicity reported in the case of dieldrin. None of the insecticides so far tried has a lethal effect on triatome eggs. A single extensive and thorough spraying of the internal surfaces of houses, furniture and fittings, and all outbuildings where vectors frequently reproduce is not sufficient to exterminate all the triatomines in a locality. A second or even a third spraying is recommended with intervals of 30 to 180 days between each spraying.

Health education is most important. It should aim at spreading knowledge of the harmful activity of triatomines and convincing the population that it is important to exterminate them.

The complement fixation test should be applied to blood donors as a matter of routine, not only in endemic areas but also in regions where people coming from endemic areas have settled since it has been proved that Chagas' disease can be transmitted to man through blood transfusion. If it is impossible to apply the complement fixation test as a matter of routine, the addition of trypanocidal substances to the blood could be useful. Prevention of congenital transmission presents great practical difficulties, and it is necessary to study the conditions which may favor it.

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#### Malaria Control and Population Pressure in Ceylon

Harald Frederiksen MD, MPH, DTM & H, Division of International Health, Public Health Service, Washington, D. C. Public Health Rep 75:865-868, October 1960.

The history of Ceylon is frequently cited as an example of the demographic effects of malaria control. A reduction in the death rate (for all causes of death) from 20.3 in 1946 to 14.3 in 1947 has been attributed to malaria control through the residual spraying of insecticides. The reduction in the death rate with a relatively constant birth rate has led to the widely publicized conclusion that malaria control had caused a "population explosion" which in turn has led to predictions of impoverishment and famine in Ceylon as ultimate results of malaria control.

The conclusion that malaria control was primarily responsible for the reduction in the death rate of Ceylon in 1947 arose from the coincidence of the drop in the death rate with the extension of residual spraying of insecticides. This conclusion implied that the control, as well as the problem, of malaria



affected a major proportion of the population. However, surveys conducted prior to the campaign indicated that 62% of the population of Ceylon resided in essentially nonmalarious districts, whereas residual spraying was confined to the area with endemic malaria.

The first year that a substantial proportion of the population exposed to malaria was protected for a full year was 1947. This protection represented 28% of the population of Ceylon. The most dramatic death rate for all causes had already taken place in the second half of 1946 when only 18% of the national population had been protected from malaria.

The number of deaths (all causes) in the second semester of 1946, when compared with the number in the second semester of 1945, declined 24% in the unprotected nonmalarious area and 26% in the malarious area, or 25% over all. The death rate of Ceylon had been displaying a downward trend at least since 1905 except for an interruption brought about by World War II, and during a drought in 1935.

The available evidence fails to establish malaria control as the sole or major cause of a population explosion in Ceylon. At the same time, malaria control has made habitable what was in ancient times the most populous and productive area of the Island. It appears that in Ceylon the net demographic effect of malaria control for the present could be to reduce population pressure by providing more living space.

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#### Diarrheal Disease Associated with Clostridia

The Los Angeles City Health Department reported that 8 persons became ill from 7-1/2 to 23 hours following a picnic attended by 11 individuals. Two of those ill had symptoms of nausea, vomiting, stomach cramps, and diarrhea; 5 complained of stomach cramps and diarrhea; the last person to become ill suffered only diarrhea. All recovered between 25 and 48 hours after onset. Foods served at the picnic included barbecued chuck roast, barbecued chicken, various relishes, and lemonade. The illness attack rate was highest for the barbecued chuck roast. The 3 persons who did not become ill did not eat the roast but did eat the chicken. An examination of a sample of the beverage, made with water from the picnic area, did not reveal any pathogenic organism. A sample of the chuck roast, examined in the City Health Department Laboratory, yielded cultures of gram-positive *Clostridium perfringens* and *Cl. bifermentans*; gram-positive cocci were present also. Specimens from 7 patients were negative.

The roast was prepared in a market 2 days before the picnic. After preparation, it was kept wrapped in foil at room temperature for about 7 hours before it was delivered to a private home where it was refrigerated until the day of the picnic. It was taken to the picnic grounds in an insulated cooler containing ice. (DHEW PHS Morbidity and Mortality Weekly Report, 26 Nov 1960)

(Reports of outbreaks of diarrheal disease due to anerobic organisms of the Clostridium group appear not infrequently, particularly in European literature. The outbreaks remain unknown; not uncommonly the investigator invokes a viral etiology in these cases. The more frequent use of anerobic technics in bacteriologic investigations of food-borne disease might clarify the etiology of some of these outbreaks. —Editor)

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#### Potential Hazards of Lead Poisoning from Cerama Stone Dinnerware

Two well authenticated cases of lead intoxication occurring in Cincinnati, Ohio have been ascribed to lead ingested because of the action of acid food on "Cerama Stone" dinnerware, a product of the Laurel Pottery Manufacturing Company, Stockton, Calif. Examination by the California State Department of Public Health of approximately 50 pieces of pottery taken directly from the stock of the company itself revealed a significant quantity of lead removed by dilute nitric acid, acetic acid, applesauce, salad dressing, tomato juice, and other foods.

Samples of similar mat-type pottery from other manufacturers in California did not indicate the presence of soluble lead pigments when these samples were subjected to the same tests.

Although there have been no instances of lead intoxication from stone dinnerware made known to the Department of Health and Welfare in Maine—a general alert seems advisable as this product may be brought into the State at any time through retail or mail order outlets. (State of Maine, Department of Health and Welfare, Bureau of Health, Communicable Disease Report, 14 January 1961)

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#### How to Make Mess Trays Sparkle

If mess trays are not clean and sparkling and the coffee cups do not shine, the temperature of the final rinse water in the dishwashing machine may be the culprit. NavShips 250-522—Operation and Maintenance of Dishwashing Machines—says the final rinse valve should be adjusted so that the last rinse temperature is between 180 and 195 F.

Here's how the problem was tackled by the supply and fiscal officer, U.S. Naval Administrative Unit, Lake Meade Base, Las Vegas:

The trays were drab and dull looking, the cups were clean but had no sparkle. After checking to be sure that the correct amount and type of detergent was used, he checked the water temperatures in the wash tank and at the



final rinse. All water temperatures were correct except for the final rinse. Water at 150 F and saturated steam at 14 psi were delivered to the dishwater. Using the steam and water mixing valve, maximum temperature attained in the final rinse water was 165 F. Constant cleaning and adjusting of valves failed to raise the temperature of the final rinse water.

One of the Public Works people had heard of a gimmick called a "Flash Heater" designed to raise the temperature of water practically instantaneously. The "Flash Heater" idea was investigated and a Coates Electric Booster Water Heater, 3 phase, 230 volts, 34 KW, complete with control panel, pressure relief valve, and combination temperature-pressure gauge was obtained.

This heater solved the problem for less than \$500. The unit is relatively small and was installed directly adjacent to the dishwashing machine in February 1959. Since that time the temperature of the final rinse water has always been above 180 F, and mess gear and trays now sparkle like the sun on the sea. (The Monthly Newsletter; Magazine of the Navy Supply Corps, November 1959)

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#### Rabies and Bats

The first proven case of rabies in bats occurred in Florida in June 1953. Since that time numerous isolations of rabies virus from various species of bats have been reported from 23 other states. In August 1960, two more states joined the list—Oregon on the west coast and Indiana in mid-America.

Bats undoubtedly contribute much more benefit than harm to mankind through maintaining a balance in nature. They consume from one-half to their full weight of insects each feeding, thereby contributing tremendously to the constant struggle for insect control. But the fact remains that a potential danger does exist whenever a person suffers a bat bite. At least 5 persons have died of rabies in the United States in the last 2 years who have had a history of known bat exposure. Many people neglect to consider the hazard of such an experience and do not seek medical aid. The wounds are rarely of any magnitude as regards tissue damage, consisting merely of pinpoint pricks inflicted by razor sharp incisor teeth.

The number of infected bats is probably quite small when compared to the total number of bats in Indiana. Unfortunately, rabies in these animals does not make a sufficiently uniform appearance for a person to tell whether the bat is infected. Therefore, all bat bites must be considered dangerous and the victim must seek immediate medical consultation. If the attack is unprovoked, the action is definitely out of normal character for the bat. If a person can catch the bat, it probably is sick, although such may not always be the case. (J.D. Salisbury, Indiana State Board of Health Monthly Bulletin, November 1960)

### Preventive Medicine Briefs

Tetracycline Resistance of Streptococci. Twenty percent (42 of 218 strains) group A beta hemolytic streptococci isolated from several sources in the Seattle area over a 7-month period were found to be resistant to tetracycline antibiotics. The majority of strains were isolated from patients with clinical infections, and some failed to respond to treatment with tetracyclines. Asymptomatic carriers were also noted. Together with other recent reports, these results indicate that tetracyclines should probably not be used for prophylaxis of rheumatic fever, and should not be used for therapy of streptococcal sore throats without knowledge of susceptibility of the infecting streptococcus. (H.A. Kuharic, et al, JAMA, December 3, 1960)

Arthropod-Borne Viruses. The list of viruses carried by arthropods (mosquitoes, ticks, gnats, et cetera) is constantly growing. The total number already known exceeds 125, and it is certain that there are many more. One fundamental characteristic of these viruses is to require the intervention of an arthropod vector and vertebrate host for their maintenance in nature; with one or two possible exceptions, man is only a tangential or accidental victim. This does not mean, however, that arthropods are of negligible importance for public health. Serious outbreaks of disease due to arthropod-borne viruses have occurred in the past, and are still occurring in many parts of the world: yellow fever, dengue, Japanese B encephalitis, Russian spring-summer encephalitis, and the "new" Kyasanur Forest disease are good examples. (World Health Organization, WHO Chronicle, November 1960)

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